Joint Statement of Intent on General Education Natural Science Laboratory Courses

Chair: Daniel B Monteith
Task Force Members: John M Petraitis, Andy Veh, James T Pantaleone, Mark A Fitch, Jacqueline E Cason, Rich Collins, Rainer Newberry, Orion Lawlor, Michael S Stekoll, Deborah K Barnett, Cathy L Connor

Instruction methods are changing and evolving rapidly, with exciting opportunities but serious challenges, and this requires a more open and inclusive university-wide discussion including students, instructors, faculty, adjuncts, and administration. The University of Alaska has a mission to provide Alaskan students access to higher education. Laboratory natural science courses, which are a vital part of our bachelor's GER/core, pose particular challenges to ensure both access and quality. Crucially, natural science is about sensing and interacting with the physical environment, and laboratory courses illustrate the experimental methods used with the complexities as found in nature.

This document reminds faculty of the review process for GER/core lab science courses as defined below. We recommend that all departments offering a GER natural science laboratory course take the following steps for each such course on a schedule to be determined by the departments and curriculum review bodies.

1. Decide if the student learning outcomes and course content need to be revised.
2. Submit revisions through the regular curriculum process.
3. Assess all their GER/core natural science laboratory courses to ensure that student learning outcomes are achieved.

*The specific procedures for doing such reviews will presumably vary among the MAUs.

This recommended policy applies only to natural science laboratory courses accepted for the lab science requirement of the bachelor's GER/core at any MAU. Policies vary widely between the UAA GER /L lab courses, UAF natural science core courses, and UAS GERS lab natural science courses. Lab science courses affect every baccalaureate major, touching every department.

Disciplines can best determine content; faculty in the disciplines are in the best position to judge instructional methods. However, Faculty Senate oversight is important to maintain overall quality control.

Review will also be conducted via the ordinary MAU assessment process. Ongoing assessment and review is highly recommended.

These are issues for faculty to address when choosing the mode of delivery (see also: *Supplemental Questions for Online Course Approval Requests*, Berkeley Division of Academic Senate Committee on Courses of Instruction). We recommend that a form be created for new and revised science lab courses that include the following:

1. What are the goals and outcomes of the existing face-to-face sections?
2. What delivery methods will be used from the list above, and in what proportions?
3. What are the goals and outcomes of the lab sections? Are the goals and outcomes different for different modes of lab instruction? How will the goals and outcomes be achieved, and assessed?
4. If a new mode of delivery for an existing lab course is proposed, how will the new lab section be different from existing lab sections?
5. Is there a population of students identified that need this course?
6. Student preparation: How will students be advised and screened for technology proficiency? Do they have the prerequisite knowledge and preparation? Do they have the self-pacing skills needed for distance elivery? Are technologies introduced at an appropriate pace?

7. How will students and instructors interact? How will students and other students interact? Will the technology support a "community of learning"?

8. Will a fully asynchronous course include some synchronous time for students to ask and answer questions? Are synchronous sessions required (lecture/discussion) or optional (office hours)?

9. What are the expectations for student-faculty communications, such as email latency and frequency, and how will they be met?

10. What internet connection (bandwidth) will be required for students? For instructors?

11. Specific technology questions: a. For take-home kits, how will the kits be purchased? Maintained? Are there safety concerns? How does the equipment in the kits compare with in-classroom lab equipment?

b. For simulations, how will they be used in this course, and how do they compare with reality? How do they compare with professional methods or practices in the field? What software will be required?

12. How will plagiarism and academic integrity issues be addressed?

Issues for reviewers to assess during the routine lab course review process (see also: *Best Practices for E-Labs*, Southern Association of Colleges and Schools, substituting "e-labs" for "programs") are listed below. The course instructors will submit relevant information addressing the questions below.

1. What are students supposed to be learning in the existing face-to-face sections? Are they learning that, and how is it assessed?

2. Will distance courses affect face-to-face enrollment? Will distance courses draw students away from existing courses, eventually replacing them, or primarily draw in new students?

3. What impacts will this course have on the program's professional accreditation? What effect will the course have on downstream courses, using it as a prerequisite?

4. How will the course design work be supported, for the significant effort to develop a new distance course or convert an existing course? How much effort is it? Will it appear in faculty workloads?

5. Who will choose instructors for the course? How will instructors be trained in the changing technology for distance learning?

6. How is the enrollment cap determined for each distance section?

7. Will there be teaching assistants for additional distance sections?

8. How will the department validate the domain knowledge for the courses in their discipline? Who will be responsible for that validation?

Broader-Scale Issues that eventually need to be addressed by groups outside of the UA Faculty Alliance (e.g., unions)

1. How will coordination be maintained between campuses?

2. How will intellectual property issues be handled? Who owns the course content—the faculty who develop the course, the department, the university, the book publisher?

3. How will software, servers, and information technology be vetted, supported and standardized? How will these be maintained for the entire lifetime of the course?

Issues the UA Task Force decided not address:

● Non-GER/core science labs. Individual departments should choose how their own 300 and 400 level lab courses are designed and delivered. Further, their choices, will--in the vast bulk of cases--only impact their department and those equivalent ones of the other MAUs.

● Transferability of distance delivered courses, both between MAUs and from other institutions. UA Board of Regents Policy addresses transferability of credit both in general and for GER courses in particular (See sections P10.04.060 and P 10.04.062).

The UA Task Force recommends a annual or semi-annual inter-MAU faculty meeting would be useful to integrate the university system, which will assist with issues like transferability.